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(54) [Title of the Invention] **Amorphous Polyethylene Terephthalate Resin Composition and Resin Sheet**

(57) [Summary]

[Object] It is an object of the present invention to provide a polyethylene terephthalate resin composition with which it is possible to manufacture a resin sheet that is superior in terms of rolling lubricity and anti-plate-out characteristics in calendering, and that is also superior in terms of printability.

[Means of Achievement] The present invention provides an amorphous polyethylene terephthalate resin composition which is formed by mixing 0.1 to 4 parts by weight of a lubricating agent containing an olefin type wax, a fatty acid ester and a calcium salt of a fatty acid ester with 100 parts by weight of a resin consisting mainly of an amorphous polyethylene

terephthalate, this amorphous polyethylene terephthalate resin composition being characterized in that the amount of the above-mentioned olefin type wax that is added is 0.01 to 1 part by weight, the amount of the above-mentioned fatty acid ester that is added is 0.01 to 0.5 parts by weight, an the amount of the above-mentioned calcium salt of a fatty acid ester that is added is 0.01 to 2.5 parts by weight.

[Selected Drawing] None

[Claims]

[Claim 1]

An amorphous polyethylene terephthalate resin composition which is formed by mixing 0.1 to 4 parts by weight of a lubricating agent containing an olefin type wax, a fatty acid ester and a calcium salt of a fatty acid ester with 100 parts by weight of a resin consisting mainly of an amorphous polyethylene terephthalate, said amorphous polyethylene terephthalate resin composition being characterized in that the amount of the olefin type wax that is added is 0.01 to 1 part by weight, the amount of the fatty acid ester that is added is 0.01 to 0.5 parts by weight, an the amount of the calcium salt of a fatty acid ester that is added is 0.01 to 2.5 parts by weight.

[Claim 2]

The amorphous polyethylene terephthalate resin composition according to claim 1, wherein said olefin type wax is a polyolefin wax with a number-average molecular weight of 50,000 or less.

[Claim 3]

The amorphous polyethylene terephthalate resin composition according to claim 2, wherein said polyolefin wax is a polyolefin modified wax with an acid value of 10 or greater.

[Claim 4]

The amorphous polyethylene terephthalate resin composition according to any one of claims 1 through 3, wherein the fatty acid in the fatty acid ester and the calcium salt of the fatty acid ester is a saturated fatty acid with 20 to 30 carbon atoms.

[Claim 5]

The amorphous polyethylene terephthalate resin composition according to any one of claims 1 through 4, wherein the resin consisting chiefly of said amorphous polyethylene terephthalate is a resin comprising an amorphous polyethylene terephthalate in a ratio of 40 to 85 % by weight and an acrylic type soft resin in a ratio of 15 to 60 % by weight.

[Claim 6]

A resin sheet consisting of the amorphous polyethylene terephthalate resin composition according to any of claims 1 through 5.

[Detailed Description of the Invention]

[0001]

[Technological Field of the Invention] The present invention relates to an amorphous polyethylene terephthalate resin composition used in calendering, and to a resin sheet consisting of this resin composition.

[0002]

[Background Technology]

Polyethylene terephthalates are used in various applications, e.g., packaging materials for food products, sheets used for lamination in construction, household electrical appliances and the like. In the past, polyethylene terephthalate sheets used in such applications have generally been molded by extrusion molding methods or injection molding methods. In the case of such molding methods, however, portions with different thicknesses tend to be locally formed in the molded sheet, so that it is difficult to obtain a sheet with a uniform thickness. Accordingly, the sheets that are obtained are not always suitable for working by various types of lamination, coating or the like. In regard to these molding methods, calendering methods that are generally used as sheet molding methods for polyvinyl chlorides and the like are techniques in which a molten resin is formed into a sheet with a desired thickness by rolling this molten resin with heated metal rolls, so that sheets with a uniform thickness can be manufactured. However, in cases in which amorphous polyethylene terephthalates are used as the materials for calendering, the release characteristics from the metal rolls are poor, so that sheet molding is difficult.

[0003]

Accordingly, methods for improving the roll lubricity (roll release characteristics) in calendering by admixing lubricating agents have been investigated. In Japanese Unexamined Patent Application No. 2002-212399 (Patent Reference 1), a method is described in which a hydroxy-fatty acid oligoester or metal salt of the same is mixed with a thermoplastic polyester type resin. Furthermore, in Japanese Unexamined Patent Application No. 11-343353 (Patent Reference 2), a method is described in which a fatty acid ester type lubricant is added to an

amorphous polyethylene terephthalate. Moreover, in Japanese Unexamined Patent Application No. 2000-186191 (Patent Reference 3), a method is described in which an organic phosphoric acid ester or [both] an organic phosphoric acid ester and a fatty acid ester are added to an amorphous polyethylene terephthalate.

[0004]

[Patent Reference 1]

Japanese Unexamined Patent Application No. 2002-212399

[0005]

[Patent Reference 2]

Japanese Unexamined Patent Application No. 11-343353

[0006]

[Patent Reference 3]

Japanese Unexamined Patent Application No. 2000-186191

[0007]

[Problems to Be Solved by the Invention]

However, in cases in which the lubricants described in the aforementioned patents are used, some of the mixture components separate and adhere to the roll surfaces, so that so-called plate-out occurs, and the metal rolls therefore become contaminated in cases in which calendering is performed for a long period of time. Furthermore, in cases in which printing is performed on the resin sheets thus obtained, printability (adhesion) of this printing deteriorates over time, so that sheets that are suitable for use in applications that require printing cannot be obtained. Specifically, in the case of the lubricants described in the respective patents mentioned above, when amorphous polyethylene terephthalates are subjected to calendering, it is difficult to improve the roll lubricity, anti-plate-out properties and printability of the resin sheets in a balanced manner.

[0008]

The present invention was devised in light of the aforementioned problems, and an object of the present invention is to provide an amorphous polyethylene terephthalate resin composition which is superior in terms of roll lubricity and anti-plate-out properties in calendering, and which makes it possible to manufacture resin sheets that are superior in terms of printability, and to provide a resin sheet consisting of this resin composition.

[0009]

[Means Used to Solve the Above-Mentioned Problems]

The present inventors conducted diligent research in an attempt to achieve the aforementioned object; as a result of this research, the inventors discovered that an amorphous polyethylene terephthalate resin composition which is superior in terms of roll lubricity and anti-plate-out properties in calendering, and which makes it possible to manufacture resin sheets that are superior in terms of printability, can be obtained by a method whereby a lubricant in which an olefin type wax, a fatty acid ester and a calcium salt of a fatty acid ester are mixed in specified proportions is added to a resin consisting mainly of an amorphous polyethylene terephthalate, with the lubricant being added in specified proportions. This discovery led to the present invention.

[0010]

Specifically, the amorphous polyethylene terephthalate resin composition of the present invention is an amorphous polyethylene terephthalate resin composition which is formed by mixing 0.1 to 4 parts by weight of a lubricating agent containing an olefin type wax, a fatty acid ester and a calcium salt of a fatty acid ester with 100 parts by weight of a resin consisting mainly of an amorphous polyethylene terephthalate, wherein the amorphous polyethylene terephthalate resin composition is characterized in that the amount of the above-mentioned olefin type wax that is added is 0.01 to 1 part by weight, the amount of the above-mentioned fatty acid ester that is added is 0.01 to 0.5 parts by weight, an the amount of the above-mentioned calcium salt of a fatty acid ester that is added is 0.01 to 2.5 parts by weight.

[0011]

Furthermore, the resin sheet of the present invention is a resin sheet consisting of the aforementioned amorphous polyethylene terephthalate resin composition.

[0012]

In the amorphous polyethylene terephthalate resin composition and resin sheet of the present invention, it is desirable that the aforementioned olefin type wax be a polyolefin wax with a number-average molecular weight of 50,000 or less; furthermore, it is even more desirable that the aforementioned polyolefin wax be a polyolefin modified wax with an acid value of 10 or greater.

[0013]

Furthermore, in the amorphous polyethylene terephthalate resin composition and resin sheet of the present invention, it is desirable that the fatty acid in the fatty acid ester and the calcium salt of the fatty acid ester be a saturated fatty acid with 20 to 30 carbon atoms.

[0014]

Furthermore, in the amorphous polyethylene terephthalate resin composition and resin sheet of the present invention, it is desirable that the resin consisting chiefly of the afore-mentioned amorphous polyethylene terephthalate be a resin comprising an amorphous polyethylene terephthalate in a ratio of 40 to 85 % by weight and an acrylic type soft resin in a ratio of 15 to 60 % by weight.

[0015]

Furthermore, the term "sheet" used in the present invention includes both sheets and films.

[0016]

[Embodiments of the Invention]

The present invention will be described in detail below in terms of preferred embodiments.

[0017]

First, the amorphous polyethylene terephthalate resin composition of the present invention will be described.

[0018]

The amorphous polyethylene terephthalate resin composition of the present invention is formed by mixing 0.1 to 4 parts by weight of a lubricating agent containing an olefin type wax, a fatty acid ester and a calcium salt of a fatty acid ester with 100 parts by weight of a resin consisting mainly of an amorphous polyethylene terephthalate, wherein the amorphous polyethylene terephthalate resin composition is characterized in that the amount of the above-mentioned olefin type wax that is added is 0.01 to 1 part by weight, the amount of the above-mentioned fatty acid ester that is added is 0.01 to 0.5 parts by weight, an the amount of the above-mentioned calcium salt of a fatty acid ester that is added is 0.01 to 2.5 parts by weight.

[0019]

The resin consisting mainly of an amorphous polyethylene terephthalate in the present invention may be a resin that consists exclusively of an amorphous polyethylene terephthalate, or may be a resin that consists of an amorphous polyethylene terephthalate and another resin. There are no particular restrictions on the other resins that can be used; for example, such resins may include acrylic type soft resins. In cases in which other resins are thus mixed, it is desirable that the amorphous polyethylene terephthalate be included in a ratio of 40 % by weight or greater in the total amount of resin. In regard to the resin consisting mainly of an amorphous polyethylene terephthalate used in the present invention, it is desirable that this resin consists of an amorphous polyethylene terephthalate contained in a ratio of 40 to 85 % by weight and an acrylic type soft resin contained in a ratio of 15 to 60 % by weight. A resin consisting of an amorphous polyethylene terephthalate contained in a ratio of 60 to 80 % by weight and an acrylic type soft resin contained in a ratio of 20 to 40 % by weight is even more desirable.

[0020]

From the standpoint of calendering characteristics such as roll lubricity and the like, it is desirable that the aforementioned amorphous polyethylene terephthalate be a copolymer of a dicarboxylic acid component consisting of 100 mol% terephthalic acid and a glycol component consisting of 60 to 80 mol% ethylene glycol and 20 to 40 mol% 1,4-cyclohexanedimethanol.

[0021]

Furthermore, the aforementioned acrylic type soft resin is a polymer with a multi-layer structure formed by polymerizing a monomer mixture containing alkyl acrylate esters, alkyl methacrylate esters, unsaturated monomers, polyfunctional crosslinkable monomers, polyfunctional graft monomers and the like. Examples of such polymers include a polymer with a multi-layer structure in which a single-layer polymer layer formed by polymerizing a monomer mixture consisting of an acrylic acid ester monomer and an unsaturated monomer is disposed as an outer layer on a single-layer polymer layer formed by polymerizing a monomer mixture consisting of a methyl methacrylate monomer, an unsaturated monomer and a polyfunctional crosslinkable monomer; a polymer with a multi-layer structure in which a single-layer polymer layer formed by polymerizing a monomer mixture consisting of an alkyl acrylate ester, an alkyl methacrylate ester and an unsaturated monomer is disposed as an outer layer on a single-layer polymer layer formed by polymerizing a monomer mixture consisting of an alky acrylate ester,

an alkyl methacrylate ester, an unsaturated monomer, a polyfunctional crosslinkable monomer and a polyfunctional graft monomer; and the like. Furthermore, it is desirable that the aforementioned acrylic type soft resin have a Tg of 50°C or lower, and a Tg of 30°C or lower is even more desirable. If such an acrylic type soft resin is used together with an amorphous polyethylene terephthalate, various physical properties (strength, softness and the like) of the resin sheet that is obtained tend to be improved.

[0022]

The lubricating agent of the present invention contains an olefin type wax, a fatty acid ester and a calcium salt of a fatty acid ester.

[0023]

For instance, polyethylene waxes, polypropylene waxes, polybutylene waxes and the like may be cited as examples of the aforementioned olefin type wax. From the standpoint of calendering characteristics such as roll lubricity and the like, it is desirable that this wax be a polyolefin wax with a number-average molecular weight of 50,000 or less, and it is even more desirable that this wax be a polyolefin wax with a number-average molecular weight of 30,000 or less. Furthermore, among the aforementioned polyolefin waxes, it is desirable to use a polyolefin modified wax in which carboxylic acid groups or hydroxy groups are introduced into the molecule by methods such as acidification or the like, or in which unsaturated groups are introduced by reacting maleic acid or a compound containing epoxy groups or the like, and it is even more desirable that the acid value of the wax (as measured by the measurement method described in JIS K 5902) be 10 or greater. If such an olefin type wax is used, the roll lubricity tends to be improved. Furthermore, in the present invention, such olefin type waxes may be used singly or in combinations consisting of two or more waxes.

[0024]

Furthermore, examples of the aforementioned fatty acid esters include natural waxes and synthetic waxes consisting of esters of fatty acids and aliphatic alcohols. It is desirable that the aforementioned fatty acid be a saturated fatty acid with 20 to 30 carbon atoms. Examples of such fatty acids include behenic acid, lignoceric acid, cerotic acid, heptacosanoic acid, montanic acid, melissic acid and the like. Among these acids, montanic acid is especially desirable in the present invention. If such a fatty acid is used, the roll lubricity tends to be improved. Examples of fatty acid esters consisting of such fatty acids and aliphatic alcohols include synthetic waxes

such as behenic acid octyl esters, behenic acid stearyl esters, behenic acid lauryl esters, cerotic acid ceryl esters, montanic acid glycol esters and the like, and natural waxes such as montan wax, carnauba wax, beeswax and the like. In the present invention, it is especially desirable to use montanic acid glycol esters or montan wax. If such fatty acid esters are used, the mixing operation with the resin tends to be facilitated. Furthermore, in the present invention, such fatty acid esters may be used singly or in combinations consisting of two or more esters.

[0025]

Furthermore, examples of the aforementioned calcium salt of a fatty acid ester include salts of the aforementioned fatty acid esters with calcium. It is desirable that the salt used be a salt of a fatty acid ester consisting of one of the aforementioned saturated fatty acids having 20 to 30 carbon atoms and an aliphatic saturated alcohol having 2 to 35 carbon atoms with calcium. In the present invention, it is especially desirable to use a calcium salt of a montanic acid glycol ester. If such a calcium salt of a fatty acid ester is used, the external appearance and physical properties of the resin sheet that is obtained can be improved and the roll lubricity also tends to be improved. Moreover, in the present invention, such calcium salts of fatty acid esters may be used singly or in combinations consisting of two or more salts.

[0026]

In the amorphous polyethylene terephthalate resin composition of the present invention, it is necessary that the lubricating agent containing the three components described above be mixed in an amount of 0.1 to 4 parts by weight per 100 parts by weight of the resin consisting mainly of an amorphous polyethylene terephthalate, and it is even more desirable that this mixing ratio be 0.5 to 2 parts by weight. In cases in which the rate at which this lubricating agent is mixed is less than 0.1 pats by weight, the improvement in the roll lubricity is insufficient; on the other hand, if this mixing ratio exceeds 4 parts by weight, plate-out occurs, and there is a drop in the printability.

[0027]

Furthermore, it is necessary that the mixing ratio of the aforementioned olefin type wax be 0.01 to 1 part by weight per 100 parts by weight of the resin consisting mainly of an amorphous polyethylene terephthalate (within the range of the mixing ratio for the total amount of the aforementioned lubricating agent), and a mixing ratio of 0.1 to 0.5 parts by weight is even more desirable. In cases in which this mixing ratio is less than 0.01 parts by weight, the

improvement in the roll lubricity is insufficient; on the other hand, in cases in which the mixing ratio exceeds 1 part by weight, plate-out occurs.

[0028]

Furthermore, it is necessary that the mixing ratio of the fatty acid ester in the amorphous polyethylene terephthalate resin composition of the present invention be 0.01 to 0.5 parts by weight per 100 parts by weight of the resin consisting mainly of an amorphous polyethylene terephthalate (within the range of the mixing ratio for the total amount of the aforementioned lubricating agent), and a mixing ratio of 0.1 to 0.4 parts by weight is even more desirable. In cases in which this mixing ratio is less than 0.01 parts by weight, the improvement in the roll lubricity is insufficient; on the other hand, in cases in which the mixing ratio exceeds 0.5 parts by weight, there is a drop in the printability.

[0029]

Furthermore, it is necessary that the mixing ratio of the calcium salt of a fatty acid ester in the amorphous polyethylene terephthalate resin composition of the present invention be 0.01 to 2.5 parts by weight per 100 parts by weight of the resin consisting mainly of an amorphous polyethylene terephthalate (within the range of the mixing ratio for the total amount of the aforementioned lubricating agent), and a mixing ratio of 0.1 to 1 part by weight is even more desirable. In cases in which this mixing ratio is less than 0.01 parts by weight, the improvement in the roll lubricity is insufficient; on the other hand, in cases in which the mixing ratio exceeds 2.5 parts by weight, plate-out occurs.

[0030]

In the amorphous polyethylene terephthalate resin composition of the present invention, by setting the mixing ratio for the lubricating agent as a whole and the mixing ratios of the respective components in the aforementioned ranges, it is possible to achieve superior roll lubricity and anti-plate-out properties in calendering, as well as superior printability of the resin sheets, in a well-balanced manner. For example, in cases in which an olefin type wax and a calcium salt of a fatty acid ester are each used alone, superior roll lubricity is not obtained, and in cases in which a fatty acid ester is used alone, superior printability is not obtained. Furthermore, even if all three of these components are used, superior anti-plate-out properties are not obtained in cases in which the mixing ratios of the olefin type wax and calcium salt of a fatty acid ester exceed the upper limits of the aforementioned ranges, and superior printability is not obtained in

cases in which the mixing ratio of the fatty acid ester exceeds the upper limit of the aforementioned range. Specifically, superior roll lubricity, anti-plate-out properties and printability can be obtained in a well-balanced manner only by using the mixing ratio of the lubricating agent in its entirety and the mixing ratios of the respective components stipulated in the present invention.

[0031]

Furthermore, the lubricating agent of the present invention may also contain other common lubricants besides the three components mentioned above. In this case, it is desirable that the mixing ratio of these other lubricants be 1.5 parts by weight or less per 100 parts by weight of the resin consisting mainly of an amorphous polyethylene terephthalate.

[0032]

If necessary, furthermore, oxidation inhibitors, anti-weathering agents, antistatic agents, processing aids, silicone oil, coloring agents (such as dyes, pigments or the like), fillers (such as calcium carbonate or the like), and other additives (such as flame retarding agents or the like) may be added to the amorphous polyethylene terephthalate resin composition of the present invention within limits that do not interfere with the roll lubricity or anti-plate-out properties in calendering, or with the suitability of the printed sheets for printing. It is desirable that the amounts in which such additives are mixed be 30 parts by weight or less per 100 parts by weight of the amorphous polyethylene terephthalate,

[0033]

Next, the resin sheet of the present invention will be described.

[0034]

The resin sheet of the present invention consists of the amorphous polyethylene terephthalate resin composition of the present invention described above.

[0035]

There are no particular restrictions on the method used to manufacture this resin sheet; however, since the amorphous polyethylene terephthalate resin composition of the present invention has superior calendering characteristics, it is desirable that this sheet be manufactured using a calendering method. For example, the manufacturing method is performed by kneading the aforementioned amorphous polyethylene terephthalate resin composition using a calendering machine, and then forming this composition into the form of a sheet. Furthermore, the method

may also be performed by mixing the aforementioned amorphous polyethylene terephthalate resin composition in advance by means of a Henschel mixer or the like, followed by kneading and calendering performed using a calendering machine. Furthermore, the calendering machine used may be any calendering machine equipped with two or more metal rolls; it is desirable that calendering be performed at a roll surface temperature of 170 to 190°C.

[0036]

Furthermore, there are no particular restrictions on the methods of use of the resin sheets thus obtained. As in the case of conventional polyethylene terephthalate sheets and polyvinyl chloride sheets, these resin sheets can be used as packaging materials for food products, drugs and the like, or as sheets for lamination or stacker sheets in construction, household electrical appliances and the like.

[0037]

[Working Examples]

Below, the present invention will be described more concretely in terms of working examples and comparative examples. However, the present invention is not limited to the following working examples.

[0038]

[Working Examples 1 Through 3 and Comparative Examples 1 Through 12]

The various components shown in Tables 1 and 2 were mixed in the amounts (parts by weight) shown in the same tables, and the resulting mixtures were melted and kneaded for approximately 10 minutes in a temperature range of 90 to 160°C using a Banbury mixer. Next, calendering was performed at a roll surface temperature of 185°C using a calendering machine, thus producing resin sheets with a thickness of 0.1 mm and a width of 1 or 200 mm.

[0039]

In concrete terms, furthermore, the following materials were used as the respective components shown in Tables 1 and 2.

Amorphous polyethylene terephthalate: TSUNAMI GS-2 (manufactured by Eastman Chemical, dicarboxylic acid component: terephthalic acid 100 mol%, glycol component: ethylene glycol 70 mol%, 1,4-cyclohexanedimethanol 30 mol%); acrylic type soft resin: Parapet SA1000-F10 (manufactured by Kuraray); olefin type wax: polyethylene oxidized wax; calcium

salt of fatty acid ester: montanic acid ethylene glycol ester calcium salt; fatty acid ester: montanic acid ethylene glycol ester.

[0040]

[Roll Lubricity Test]

In Working Examples 1 through 3 and Comparative Examples 1 through 12, the roll lubricity of the amorphous polyethylene terephthalate resin compositions at the time of calendering was evaluated on the basis of the following evaluation criteria. The results obtained are shown in Tables 1 and 2.

Roll lubricity evaluation criteria:

O: No roll sticking (adhesion of the sheet to the roll)

Δ: Some roll sticking, but no problem in terms of operation

×: Severe roll sticking; sheet could not be molded

[0041]

[Test of Continuous Roll Lubricity]

The amorphous polyethylene terephthalate resin compositions of Working Examples 1 through 3 and Comparative Examples 1 through 12 were subjected to an accelerated heat resistance test by melting and kneading for 1 hour with two rolls (8 inches) adjusted to a roll surface temperature of 190°C and a roll gap of 0.2 mm, and continuous lubricity of the lubricating agent was evaluated according to the following evaluation criteria. The results obtained are shown in Tables 1 and 2.

Continuous roll lubricity evaluation criteria:

O: No difference in roll lubricity seen before and after kneading for 1 hour.

Δ: A drop in roll lubricity was seen after kneading for 1 hour; however, there was no problem in terms of operation, and the sheet could be molded.

×: The roll lubricity showed a great drop after kneading for 1 hour; the working characteristics were poor, and molding of the sheet was extremely difficult.

[0042]

[Test of Anti-plate-out Properties]

A test similar to the aforementioned test of continuous roll lubricity was performed on the amorphous polyethylene terephthalate resin compositions of Working Examples 1 through 3 and Comparative Examples 1 through 12, and the conditions of contamination of the rolls following

melting and kneading for 1 hour were visually evaluated according to the following evaluation criteria. The results obtained are shown in Tables 1 and 2.

Evaluation criteria for anti-plate-out properties:

O: No plate-out

Δ: Some plate-out occurred; fogging was generated on the roll surfaces

×: Severe plate-out occurred

[0043]

[Printability Test]

The resin sheets obtained in Working Examples 1 through 3 and Comparative Examples 1 through 12 were subjected to an accelerated test for 1 week at a temperature of 70°C and a humidity of 95%, and were then coated to a thickness of approximately 10 μm with a printing ink for PVC sheets (an ink prepared by diluting Vini-8 (for use with scales) manufactured by Nagase Screen Printing Research Co. with a solvent (toluene/MIBK = 1/1), and adjusting the ink so that the kinematic viscosity at 18°C was 490 mPa-S) by using a Meyer bar No. 12. The solvent was then removed by drying for 24 hours at room temperature. Subsequently, checkerboard cuts were formed in the coating film using the crosscut method stipulated in JIS K 5600, an adhesive tape was pasted to this cut coating film, and the conditions of adhesion of the coating film and the surface area of the missing portions following the peeling of this adhesive tape were evaluated according to the following evaluation criteria. The results obtained are shown in Tables 1 and 2.

Printability evaluation criteria:

O: Good adhesion (area of missing portions less than 15% of the square area)

Δ: Adhesion somewhat poor (area of missing portions 15 to 35% of the square area).

×: Adhesion poor (area of missing portions exceeded 35% of the square area).

[0044]

[Table 1]

[WE = Working Example, CE = Comparative Example]

	WE 1	WE 2	WE 3	CE 1	CE 2	CE 3	CE 4	CE 5
Amorphous polyethylene terephthalate resin composition	75	75	75	75	75	75	75	75
Acrylic type soft resin	25	25	25	25	25	25	25	25
Olefin type wax	0.2	0.1	0.3	0	0.01	1.8	1	0
Calcium salt of fatty acid ester	0.6	0.8	2.5	0	0.03	5.4	0	1
Fatty acid ester	0.2	0.1	0.2	0	0.01	1.8	0	0
Roll lubricity	O	O	O	×	×	O	Δ	Δ
Continuous roll lubricity	O	O	O	×	×	O	×	×
Anti-plate-out properties	O	O	Δ	O	O	×	Δ	Δ
Printability	O	O	O	O	O	×	O	O

[0045]

[Table 2]

[WE = Working Example, CE = Comparative Example]

	CE 6	CE 7	CE 8	CE 9	CE 10	CE 11	CE 12
Amorphous polyethylene terephthalate resin composition	75	75	75	75	75	75	75
Acrylic type soft resin	25	25	25	25	25	25	25
Olefin type wax	0	0.5	0	0.5	0.2	2.8	0.05
Calcium salt of fatty acid ester	0	0.5	0.5	0	0.3	0.15	2.9
Fatty acid ester	1	0	0.5	0.5	0.8	0.05	0.05
Roll lubricity	O	Δ	O	O	O	Δ	Δ
Continuous roll lubricity	O	×	O	O	O	Δ	Δ
Anti-plate-out properties	Δ	O	O	O	×	×	×
Printability	×	O	×	×	×	O	O

As is clear from the above results, it was confirmed that the amorphous polyethylene terephthalate resin composition of the present invention (Working Examples 1 through 3) showed superior roll lubricity, continuous roll lubricity, anti-plate-out properties and printability in a well-balanced manner compared to the amorphous polyethylene terephthalate resin compositions of Comparative Examples 1 through 12.

[0046]

[Effect of the Invention]

As was described above, the present invention makes it possible to obtain [i] an amorphous polyethylene terephthalate resin composition which is superior in terms of roll lubricity and anti-plate-out properties in calendering, and which makes it possible to manufacture a resin sheet that is superior in terms of printability, and [ii] a resin sheet consisting of this resin composition.